EXHIBIT A

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Executive Summary

Introduction

The City of Tempe Transportation Division provides transit service to the cities of Tempe, Scottsdale and the surrounding areas through a contracted transit service provider.

As part of the Regional Public Transportation Authority / Valley Metro, the City of Tempe completed the new East Valley Bus Operations and Maintenance Facility on a 25-acre parcel of land in Tempe in the Fall of 2007. The site is part of a larger City-owned parcel along Rio Salado Parkway, near the intersection of Rio Salado and First Street in Tempe. This new complex allows the City to own its own facilities, thus having the opportunity to provide a better working environment for the transit service employees to operate, maintain, and service the anticipated 250 buses to be located at the new East Valley Bus Operations and Maintenance Facility.

RNL, in association with Maintenance Design Group and their team of engineering consultants, provided comprehensive planning and full Architecture & Engineering design services for this important transit facility. The 250-bus facility includes Administrative Offices, Operations / Driver facilities for over 600 bus operators, a Bus Maintenance building, bus canopies to provide shade for a portion of the buses while parked, and a full LNG and partial CNG Fueling Center with Fare Retrieval and Bus Wash.

Cumulative Space Allocation Summary

The East Valley Bus Operations and Maintenance Facility consists of the three primary functions, (Administration, Operations and Maintenance) plus storage and support areas. Overall, the space needs by functional area, are as follows:

• Administrative Offices	8,710 SF
• Operations / Driver Facilities	11,015 SF
• Bus Maintenance (includes mezzanine)	78,250 SF
• Fuel / Bus Wash / Fare Retrieval	7,100 SF
• Total Building	105,075 SF
• Bus Canopies (168 buses)	94,200 SF

Master Plan / Concept Design

Upon defining the general space needs, the Design Team commenced the development of the site analysis and a Site Master Plan, which directed the overall functional layout of the 25-acre site. The

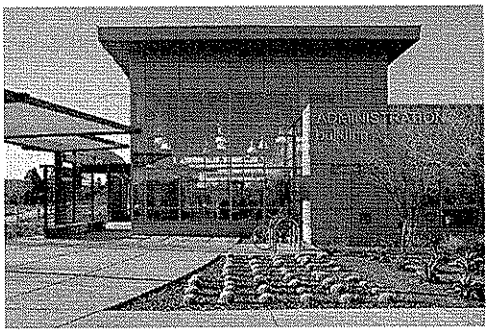
resultant design consists of two major buildings situated on the site along an east-west axis to take advantage of proper solar orientation, plus the Fuel/Wash Building at the west end of the site.

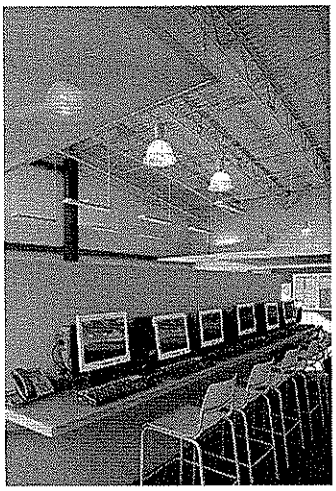
The site is only accessible from Rio Salado Parkway, and thus an access road runs along the northern edge of the property. This access road provides the primary bus access to the site and the bus parking areas, as well as access to a future Public Works facility planned for the property to the west of the site. On the south, the site backs up to the rear of industrial properties along First Street, while to the north there is vacant City-owned land that houses the City's Vortac, which serves Sky Harbor Airport.

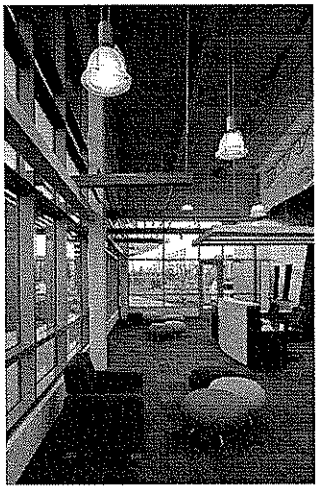
Although the area surrounding the site is not a highly traveled pedestrian route, it was a high City priority to have this facility be pedestrian-friendly and have an urban "street presence". Employees and visitors approach the site either by automobile, bus, bicycle, or on foot. A new bus stop is located just north of the Administration/Operations Building along Rio Salado Parkway, and has encouraged bus transportation to the site. This "front door" of the site, including the employee & visitor parking lots is accessible and open to the public.

The remaining three-fourths of the site is secured with limited access only to the buses, supervisors and maintenance vehicles, and a limited number of vendor vehicles, including those making fuel and parts deliveries.

Building Architecture



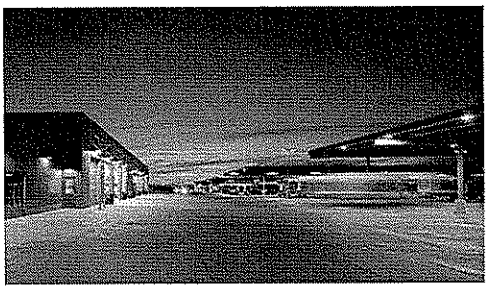
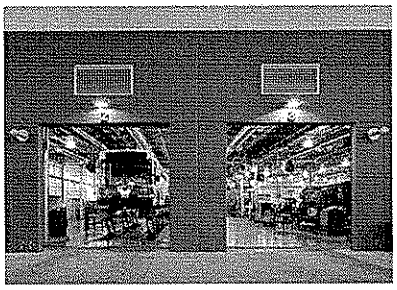
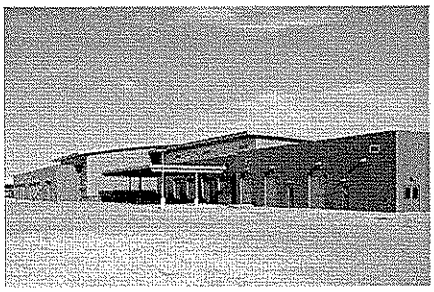




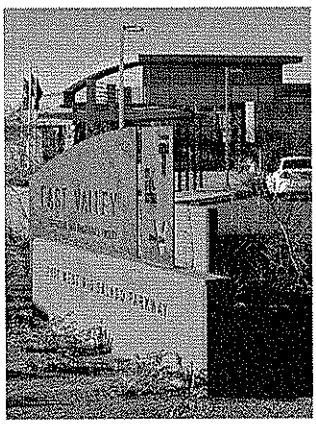
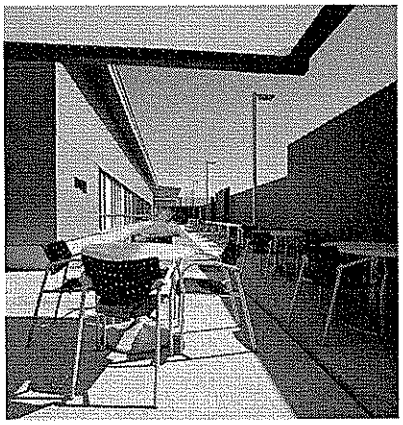
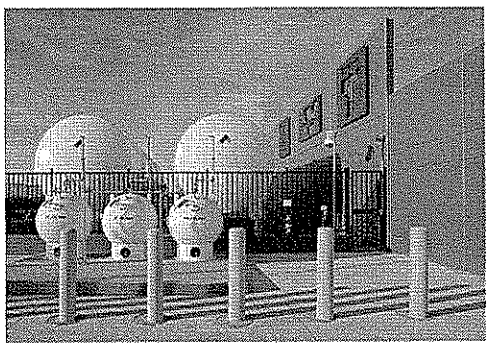
The EVBOM is directly under the flight path of Sky Harbor Airport traffic approaching or taking off from the south runways, therefore, both of the major buildings on site utilized curved roof forms to reference the transportation represented by the airplane. The architecture features a curved daylight spine on the roof of the two major buildings, which are complimented by the extensive use of curved tensile fabric with exposed structures at the bus canopies and bus shelter. The facility's location and relatively flat terrain allows it to be highly visible from many vantage points, including the commercial development across Rio Salado, any future development to the west, and from elevated locations along the freeways to the north. And so, the facility was designed to be a "good neighbor", and at the same time represent the values of the City of Tempe, as well as regional transportation as a whole.

The City desired a very contemporary, sleek, modern facility, and at the same time, have it be very "approachable". To this end, the Administration/Operations Building was located close to Rio Salado, with a very high, glassy, welcoming lobby, which defines the "front door". The roof of this entry space

gracefully opens to the North, and with the large expanses of glass, provides great visual access for the reception area, and defines the entry point for all visitors.

The Maintenance building and Fuel/Wash Building reflect a consistent design theme, with similar materials and colors. The central portion of the Maintenance Building is designed with as a two-story area and is accentuated by the curved metal roof. Additionally, curved metal roofs, which cover almost two-thirds of the roof area, open to the north allowing natural daylight to flood the maintenance spaces below through the clerestory.

Finally, the bus canopies, as well as the bus shelter, and additional canopies along the north elevation of the Maintenance Building and at the Fuel/Wash Building, have been designed as curved, white tensile fabric planes. Each individual curved plane is supported by a round tubular steel support system, which softens the masonry/metal buildings and at the same time compliments the curved roof forms.

Sustainable / LEED Summary

The City of Tempe has made a strong commitment to sustainability, and thus this project was designed with sustainable design techniques, and achieved LEED Gold certification for both the Administration Building and associated site amenities, and for the Maintenance Building and associated site. It is currently the largest facility of this kind to achieve LEED Gold certification.

Design and Construction Fees

As a part of each 'Item', we have included an estimate of probable construction costs, and also an estimate of probable design costs. Each cost has been separated out so that the City can better select items that are more pressing, should the overall construction costs exceed the allowable budget available. It should be noted that the City would most likely receive more favorable design pricing if all,

or most of the items are selected and compiled together into a single project. This would allow a single design team the ability to provide an economy of effort and a reduction in management hours. We believe the same will hold true for the construction effort, as well.

Acknowledgements

The Design Team would like to thank the staff of the City of Tempe for their valuable input and leadership in the development of this feasibility analysis.

Study Item 1: Add Shade Canopies at existing Bus Parking

Item Location: Maintenance Site

Item Brief Description:

Shade canopies were installed over approximately 50% of the 250 permanent bus parking spaces within the facility. The original assumption was that the remainder of buses would be out on the street at any given time during the day, and canopies over all the spaces would not be necessary. Operationally, it has proven to be advantageous to cover all spaces for increased parking flexibility and to offset heat gain at route change and/or shift change times.

Approach:

The existing pre-fabricated bus canopies were designed to allow for the addition of future canopies between. The same style canopies should be installed in the open spaces between the existing, while maintaining the existing bus parking layout. Existing light poles and bases will need to be removed and an area around the poles will need to be excavated so that new foundations can be installed for structural canopy columns. If similar, or the same, pre-fabricated canopy design is used, existing canopies could be used as additional bracing and support.

Suggested canopy locations are shown below in Exhibit C. Total new canopy square footage is approximately 68,544 sf.

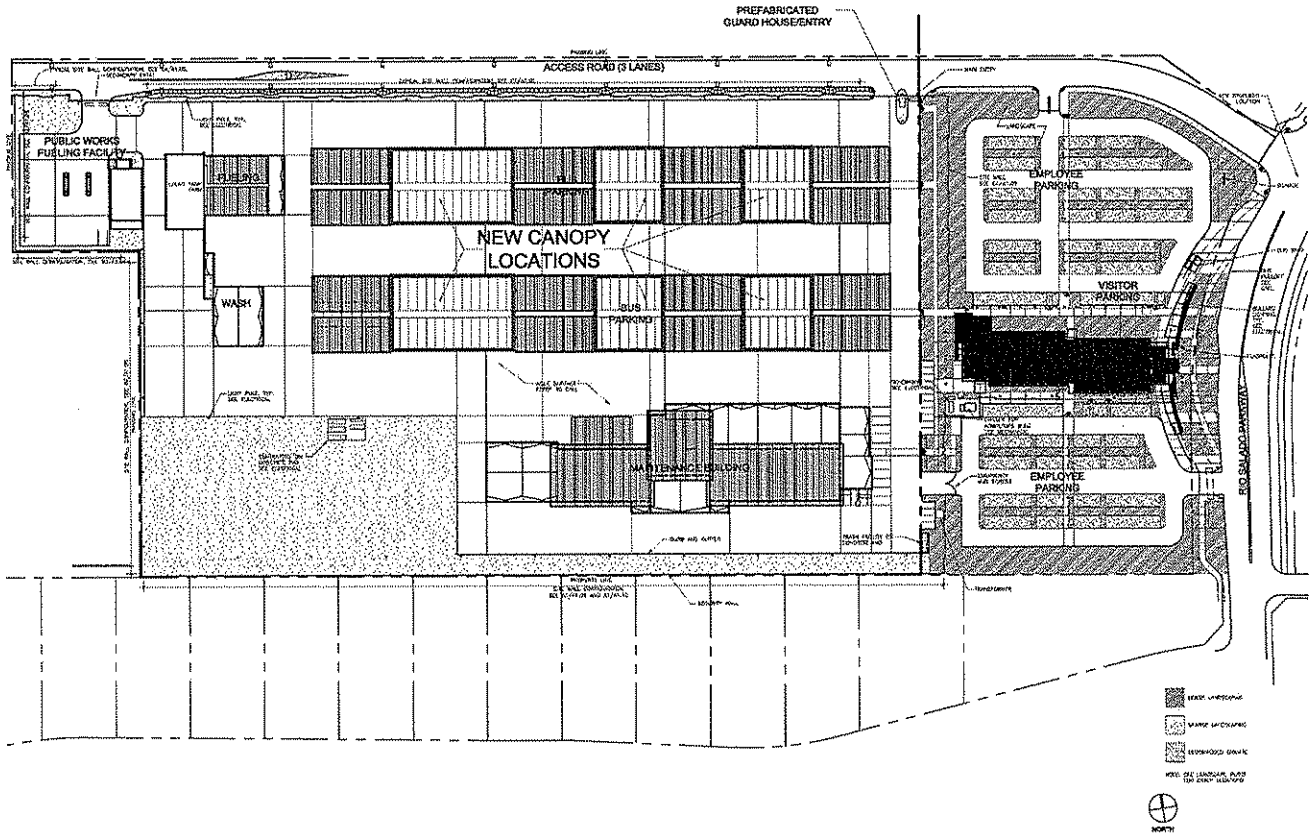


Exhibit 1A

Design Consultants Required:	Architecture MPE Engineering Structural Civil
Estimated Design Fee:	$100,000
Estimated Construction Cost:	$1,900,000

Study Item 2: Pave SW corner of site, Add canopies for 60' buses and Add Dial-A-Ride Facility

Item Location: Maintenance Site

Item Brief Description:

Additional parking is required to accommodate 30' Dial-A-Ride and Orbit vehicles, and additional 60' articulated buses. The Dial-A-Ride vehicles would also need a layover facility to include 2 Dispatch offices, 2 additional offices, a Driver's Room, Break Room, and toilet facilities. The preliminary space needs program is as follows:

Space	Sq.Ft.	#	total sq.ft.
Dispatch Office	64	2	128
Dispatch support spaces	100	1	100
Office	120	2	240
Driver's Room	600	1	600
Break Area	250	1	250
Men's Toilet	100	1	100
Women's Toilet	100	1	100
Sub Total			1,518
Circulation		10%	151
Total			**1,669**

Approach:

There is existing area at the southwest corner of the site not used as part of the initial project build-out, which totals approximately 1.79 acres. This is the only available large plot available that may accommodate the needs for these two bus functions, and the options following attempt to situate them in the most functional manner.

Option 1 (Exhibit 2A) situates a 1,600sf Dial-A-Ride building to the south of existing generator equipment to avoid relocating this equipment. This effectively separated the site into two zones, east and west of the building. To the east, 14 articulated buses can be parked under shade canopies, including circulation and bypass aisles all around. To the west, parking for 54 Dial-A-Ride vehicles under canopy cover can be accommodated. If needed, 15 non-revenue parking spaces are located between these two revenue vehicle zones, with access from the west. These employee vehicles, and the Dial-A-Ride vehicles would enter the site through the rear vehicle gate and proceed south past the bus fueling tank yard and the Wash Building.

Option 2 (Exhibit 2B) moves the Dial-A-Ride building to the far southwest corner of the site, along with 15 non-revenue parking spaces, and utilizes the area to the south of the existing generator set as a current of future storage location. This scheme also separates the parking into two zones, again accommodating 14 articulated length buses to the east with 4-sided circulation and a 40' wide drive aisle along the end of the existing Maintenance Building. The western zone utilizes a similar vehicle parking pattern, but can only accommodate 41 Dial-A-Ride vehicles due to the space needed for the building and non-revenue vehicle parking. All revenue vehicles are covered by shade canopies.

Option 3 (Exhibit 2C) relocates the building and the 15 non-revenue parking spaces back to the area south of generator set, recognizing that this building siting represents the best use of space for all program elements. This scheme maximizes the number of articulated buses by situating them west of the building. A total of 28 canopy covered buses can be housed here, however the Dial-A-Ride vehicles in the east zone have been reduced to a total of 26.

Option 1 allows for the most revenue vehicle parking, while also fulfilling all remaining program requirements. Option 3 allows for the most articulated buses in this area, but greatly compromises the Dial-A-Ride program.

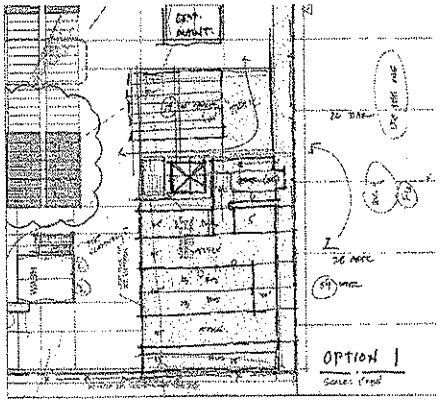


Exhibit 2A

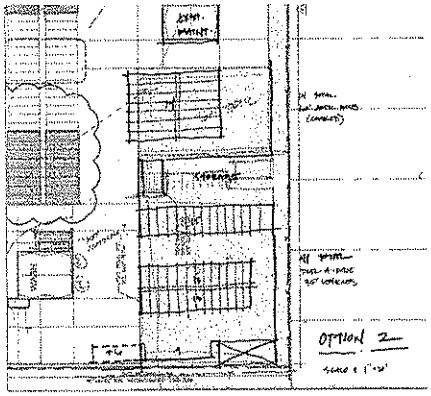


Exhibit 2B

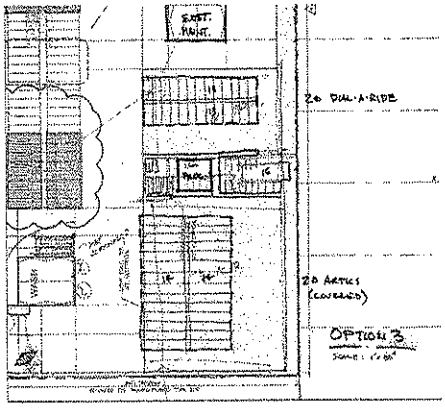


Exhibit 2C

Design Consultants Required:	Architecture Landscape Architecture MPE Engineering Structural Engineering Civil Engineering Equipment	
Estimated Design Fee:	$210,000	
Estimated Construction Cost:	$ 515,000	Paving
	$1,050,000	Canopies
	$ 335,000	Dial-A-Ride Building
Total	$1,900,000	

Study Item 3: Pave site area south of PW Fueling and Add canopies for additional buses

Item Location: Maintenance Site

Item Brief Description:

This item is related to Item 2, above. The total vehicle count for Item 2 is maximized in Option 1 at 54 DAR and 14 articulated length buses, plus 15 non-revenue vehicles. By obtaining the vacant parcel of land south of the public fueling island, the parking layout can be optimized for all types of vehicles.

Approach:

The area directly adjacent to the EVBOM facility site to the north and the west is currently owned by the City of Tempe. Although this area is identified for future projects, including a possible new Public Works facility, the fact that it's all one ownership group allows for some economies of process when it comes to acquiring a portion of the land for use by the COT Transportation Department. The area directly south of the Public Works fueling facility totals approximately 1.68 acres. Combining this with the acreage identified in Item 2 above, allows for greater flexibility in accommodating the Dial-A-Ride and additional bus parking needs identified in this study.

For this option, the space needs program for the Dial-A-Ride (DAR) building is maintained. There is some flexibility in the site plan for this building to get larger or smaller as needed. 6 spaces are placed to the south of the building for supervisor support vehicles, and these vehicles will access the site through the main, east gate and past the guard house. Once through the gate, they will travel directly south past the Maintenance Building, and south along the southern property line to their parking locations. Although this route places them on site for quite a distance, it is the most direct and keeps these non-revenue vehicles out of the standards paths-of-travel of the buses.

The city needs to add 17-20 60' long articulated buses to this site, as well. Option 4 (Exhibit 3A, below) locates 14 of these buses just east of the existing generator set and the new DAR building. They are double-stacked with circulation aisles on four sides. To the north side of the newly acquired land near Public Works fueling is space for up to 6 more of these vehicles. If not all 20 artics arrive on site, these spaces can alternately be used for 12 future Orbit fleet vehicles.

Currently the DAR fleet consists of 50 vehicles and the Orbit fleet of 43. All of these vehicles are 25' in length and required 30'x12' spaces. The future Orbit fleet is expected to approach 80 total vehicles, so an additional 37 spaces need to be added to the existing fleet parking. To the east of the DAR building, all 50 DAR vehicles and all 43 of the current Orbit vehicles can be parked. Travelling north towards Public Works fueling, an additional 25 of the 37 future Orbit vehicles can also be parked, provided the remaining artic spaces are not used for that purpose.

It appears that acquiring the additional land shown in Exhibit 3A below would be beneficial to the city for both current and future bus parking needs. No compromise to the current facility operation is anticipated.

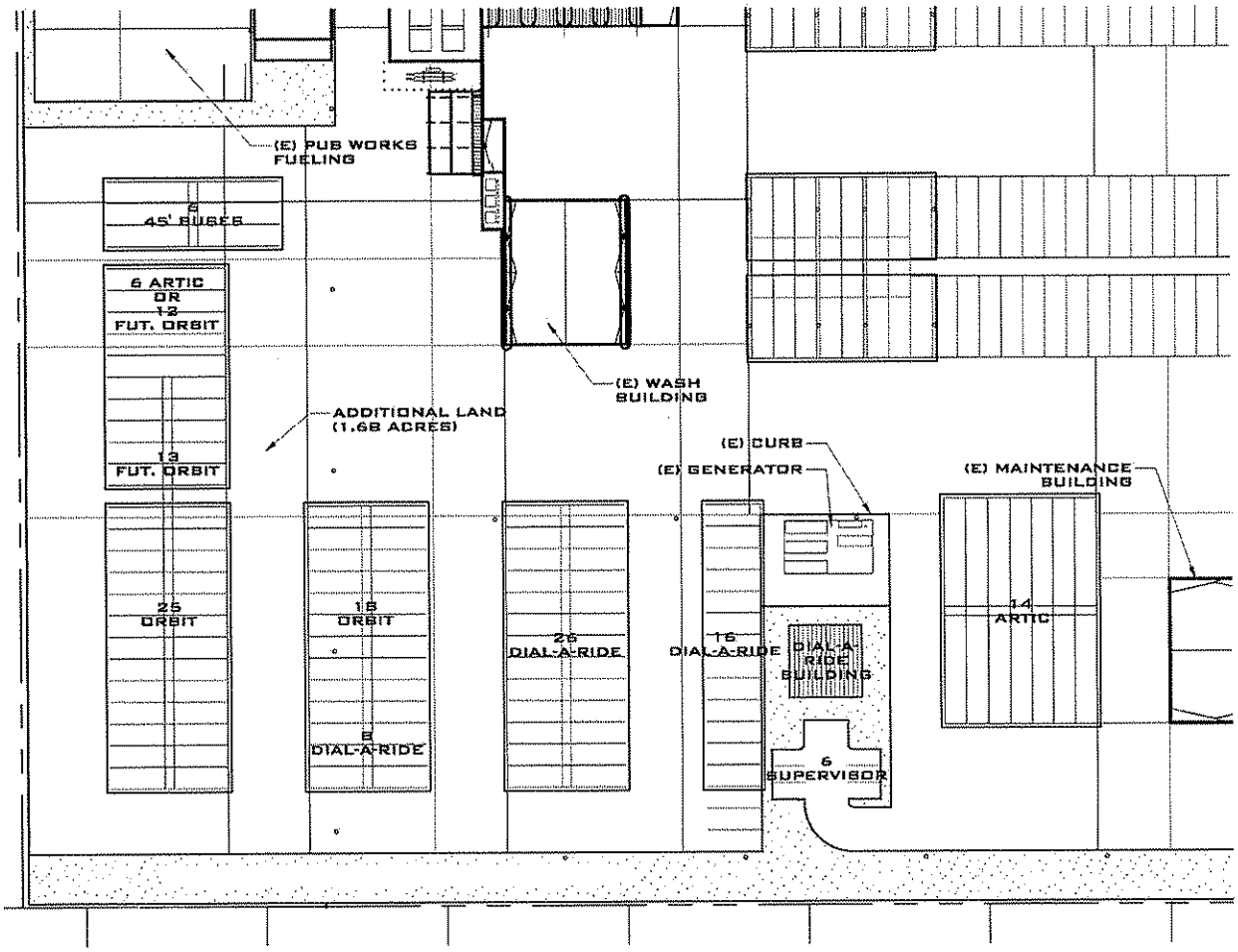


Exhibit 3A

Design Consultants Required:	Architecture Landscape Architecture MPE Engineering Structural Engineering Civil Engineering Equipment
Estimated Design Fee:	$150,000
Estimated Construction Cost:	$2,100,000

Study Item 4: Add Speed Gate at Main Entry

Item Location: Maintenance Site

Item Brief Description:

The maintenance site is currently secure around the entire perimeter through a series of gates, walls and fences. Both the main gate and the auxiliary west gate are operable by readers on buses and the guard gate to allow vehicular traffic onto the site. Vehicles leave site via driving over activators in the concrete in front of each exit gate. The gates are currently rolled form steel and motor activated, and take up to 30 seconds to open. The city has determined that these gates would be used often if the time to activate them was reduced, and would like to install 'speed gates' at the main vehicle entry.

Approach:

It is not feasible to remove the existing gates and tracks from the area on either side of the guard house at the main entry, nor is it necessary. Speed gates could simply be added to this location. The design team looked at the possibility of relocating the guard house to a location that would allow a guard and a driver to communicate without the use of a speaker system. The access road, however, is not large enough to accommodate drive aisles in both directions, a turn lane, to allow vehicles to pull out of the westward drive lane, and an island to place the guard house. The existing road is 36' wide, and would need to be a minimum of 44'.

Given this, the proposal is to add single arm swing gates to either side of the existing house operated electronically by the guard, or sensor activated from the bus. An island should be added to the access road similar to the island at the rear gate. This would allow for a turn lane into the facility, and a speaker and call button location for communication with the guard house. The location identified below allows for visual access by the guards, as well. In this scenario, none of the existing construction would need to be demolished and/or rebuilt.

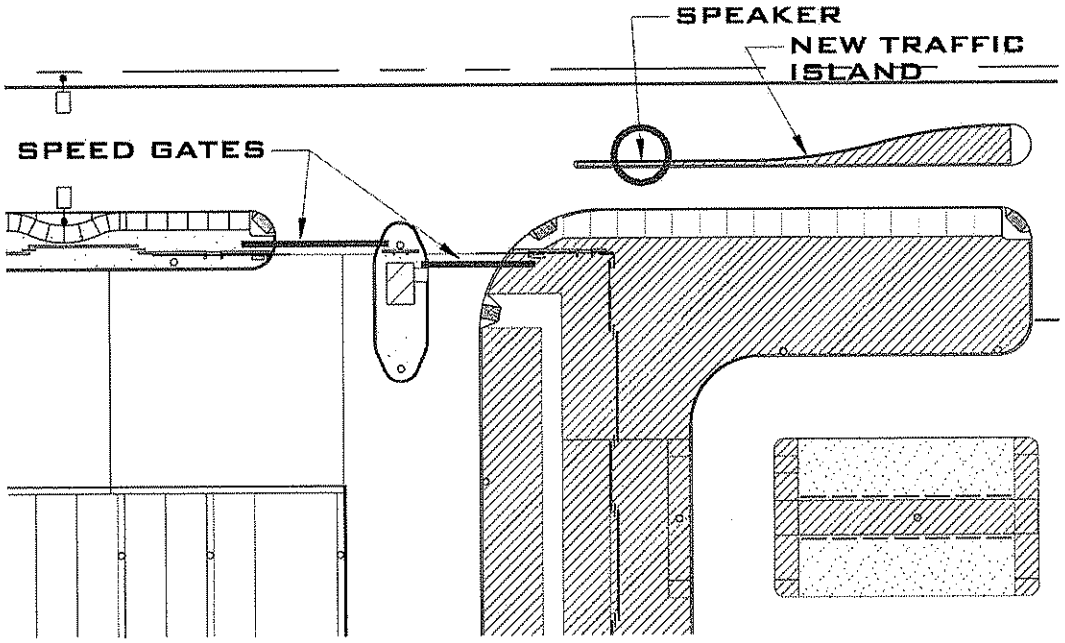


Exhibit 4A

Design Consultants Required:	Architecture MPE Engineering Structural Engineering Civil Engineering
Estimated Design Fee:	$10,000
Estimated Construction Cost:	$100,000

Study Item 5: Add two 45' Bus 2-Post In-ground lifts

Item Location: Maintenance Building

Item Brief Description:

These two in-ground lifts were originally part of the facility design, but were removed from the initial construction to save money. The lifts will be located in Running Repair Bays 10 and 11 and able to lift 45' low-floor buses for mechanics to perform several maintenance tasks. These lifts will be similar to the existing in-ground lifts that are already installed in the facility.

Approach:

The floor will need to be saw-cut to allow the lift to be installed and tied into the floor slab for support. The facility appears to have conduits in place to allow a more simple installation of the lifts. The controls will be mounted on the existing housekeeping pad and conduits located under the floor slab and will run from the controls to the lift. The finished floor between the saw-cut area and the lift frame will need to be replaced and matched to the existing floor. It is recommended that Rotary MOD-30 in-ground lifts be installed. This will match the existing in-ground lifts and have similar operation and maintenance requirements.

Location of lifts to be installed is shown below in Exhibit 5A. Exhibit 5B is a picture of the lift.

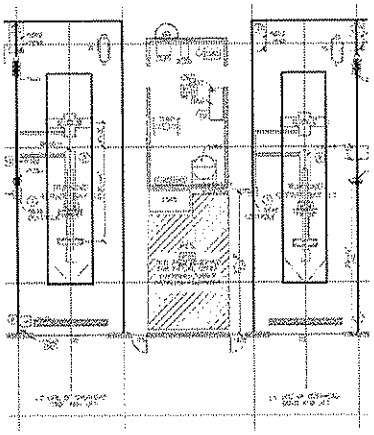


Exhibit 5A

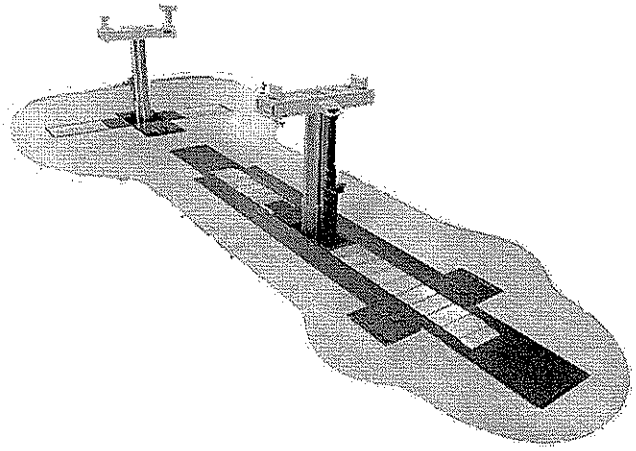


Exhibit 5B

Design Consultants Required:	Architecture MEP Engineering Structural Equipment
Estimated Design Fee:	$20,000
Estimated Construction Cost:	$260,000

Study Item 6: Add Second Chassis Wash Lift

Item Location: Maintenance Building

Item Brief Description:

The parallelogram lift was originally part of the facility design, but was removed from the initial construction to save money. The lift is capable of lifting a 45' bus with capacity of 50,000 pounds. The lift is recesses mounted in the floor so that it is flush with the finished floor and does not require ramps to drive onto the lift.

Approach:

The floor for the parallelogram lift should have been designed as a recess to accept the 32', 50,000 pound lift. The plates covering the floor recess need to be removed. The controls will be mounted on the existing housekeeping pad and conduits located under the floor slab and will run from the controls to the lift. It is recommended that Rotary 50/32 parallelogram lift (wash bay finish) be installed. This will be similar to the existing parallelogram lift and have similar operation and maintenance requirements.

Location of lift to be installed is shown below in Exhibit 6A. Exhibit 6B is a picture of the lift.

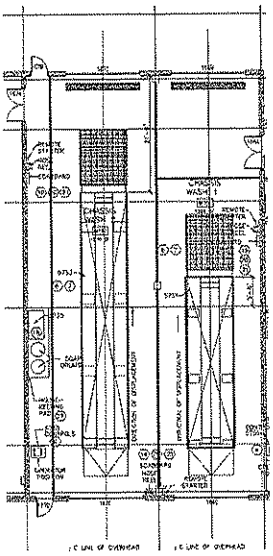


Exhibit 6A

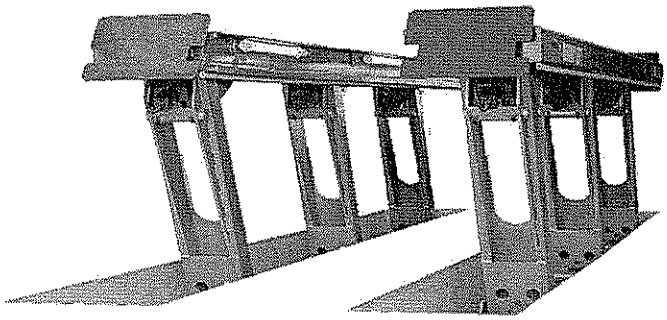


Exhibit 6B

Design Consultants Required:	Architecture MEP Engineering Equipment
Estimated Design Fee:	$20,000
Estimated Construction Cost:	$130,000

Study Item 7: Expansion of CNG-Bus Fueling System

Item Location: Fueling Building, And Adjacent LCNG-Equipment Compound

Item Brief Description:

The bus-fueling system was constructed with a transit-type CNG dispenser (with supporting LNG-to-CNG subsystem) for only one of the four fuel-service lanes, as plans for wide deployment of CNG-fueled buses at EVBOM were uncertain at the time of design and construction. Since then, plans have been implemented to deploy a substantial number of such buses there, thus requiring the addition of CNG-dispensing capability at the remaining three lanes. In addition to the dispensers, pumping and processing equipment to produce CNG from the main (existing) LNG system must also be installed.

Note: Installing CNG dispensers at each of the four fuel-service lanes would provide maximum operational flexibility, by allowing a CNG bus to fuel at any lane. However, depending on the ultimate maximum size of the CNG-fueled bus fleet at EVBOM, three or even two CNG dispensers could adequately provide the needed capacity, though with the associated constraint of where CNG buses must fuel.

Approach:

To provide the added CNG output needed to support simultaneous high-flow use of up to four CNG dispensers, two additional 16-GPM reciprocating LCNG pumps are needed to augment the two similar units currently installed. The new pumps will be matched with new fan-assisted heat exchangers needed to warm the high-pressure cryogenic liquid to ambient temperature. The four total pumps will discharge into a common manifold connection to the buffer-storage vessels and priority-valve panel, which will allow even distribution of CNG to the four dispensers. The two existing 16-GPM LCNG pumps (one primary and one redundant) plus the two new matching pumps will provide a total capacity of about 5248 SCFM of CNG output. For comparison, the large three-compressor CNG system at Mesa Greenfield has a capacity of about 4500 SCFM.

The array of buffer-storage vessels will also need to be expanded, from its current configuration of 3 x 10,500 standard cubic feet (SCF) spheres to six total spheres. These are needed to capture CNG discharge from the added HP pumps while there are no buses connected to dispensers, thus reducing pump stop-start cycling and adding effective system capacity. One each high-flow transit-type CNG dispenser similar to the current unit will also need to be installed at lanes 1, 2, and 3. Other supporting and ancillary work would also be required, such as installation of high-pressure tubing, connections to the fuel-management terminals, and programming modifications to the PLC controller for the LCNG system.

The possible installation of this CNG-system expansion was anticipated at the time of design and construction of the LCNG system. Accordingly, there is reserve space in the LCNG compound to accommodate the new pumps and heat exchangers, and the structural slab at the buffer-vessel area is sized to accommodate three new vessels. Space aligned with the existing CNG dispenser is reserved at the remaining islands and supporting conduits were installed during original construction, so little or no saw cutting is anticipated to implement this work.

The locations of the proposed new pumps, heat exchangers, buffer vessels and dispensers are shown in Figure 7A below.

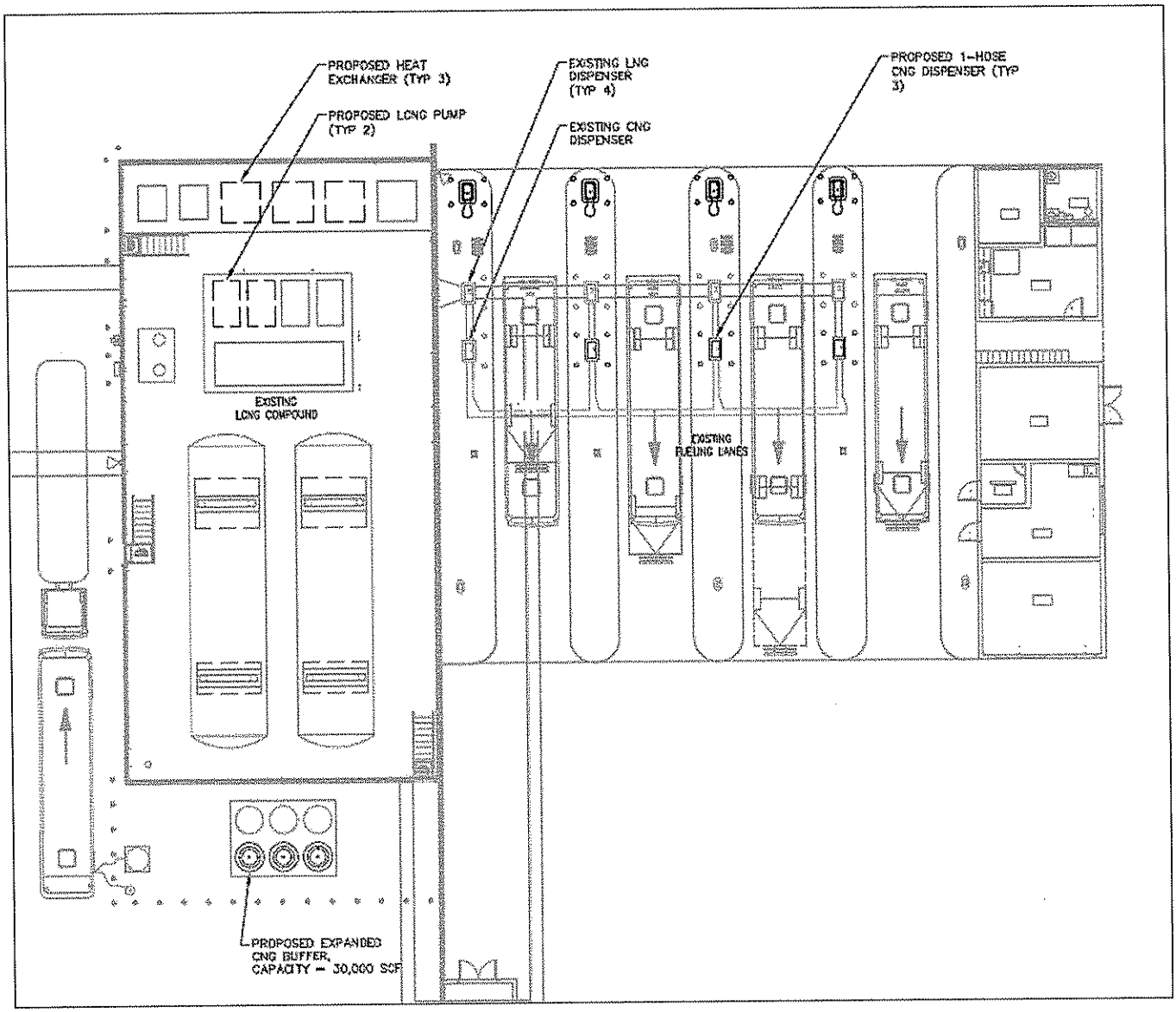


Figure 7A

Design Consultants Required:	Engineering (mechanical & electrical with LNG experience)
Estimated Design Fee:	$60,000
Estimated Construction Cost:	$800,000

Study Item 8: Addition of Diesel-Bus Fueling System

Item Location: Fueling Building, and Adjacent Petrol AST Tank Farm

Item Brief Description:

The bus-fueling system was constructed without any capability to fuel diesel-powered buses, since the deployment of diesel buses at EVBOM was not anticipated at the time of design and construction. Since then, plans have been implemented to deploy up to 40 such buses there, thus requiring the addition of diesel-dispensing capability at up to all four fuel-service lanes. The supporting diesel-storage tank and piping system would also have to be installed.

Note: Installing diesel dispensers at each of the four fuel-service lanes would provide maximum operational flexibility, by allowing a diesel bus to fuel at any lane. However, since the maximum size of the diesel-fueled bus fleet at EVBOM is not large, three or even two diesel dispensers could adequately provide the needed capacity, though with the associated constraint of where CNG buses must fuel.

Approach:

To provide the diesel-fueling capability needed to support simultaneous high-flow dispensing at up to four diesel dispensers, a 12,000-gallon aboveground storage tank (AST) with twin submerged 3 HP pumps will need to be installed. Based on a 40-bus fleet and an average of up to 100 gallons per fill per day, the tank will provide an average of just under three days between product deliveries. The tank would be located immediately south of the existing ASTs at the public-works fueling compound that is just west of the LCNG equipment compound.

The pumps will feed a new manifolded header pipe routed to the fueling building. The header will branch underground to each dispenser location. Due to the setback generated by the existing LNG dispensers and the existence of other equipment on each island, the only suitable location for the diesel dispensers is the north end of each island, where the to-be-removed fare boxes are installed. The south edge of each diesel dispenser needs to be 15' clear of the LNG hose/bus point of connection.

Additional work will be required to implement the diesel-fueling system, including connection to electrical power for the pumps and dispensers, installation of leak-monitoring sensors, and installation of either a new leak-monitoring panel or connection to the existing panel at the public-works fueling compound (pending I/O capacity of the panel). Since this system was not anticipated at time of design and construction, saw cutting for the piping runs from the AST to the dispensers, as well as for power and data connections (including to the existing fuel-management terminals) will be required. Depending on whether the City finds exposed diesel piping acceptable, runs along and through the LCNG compound and through the fueling building (with overhead feeds to the dispensers) are possible.

The locations of the proposed new AST and dispensers are shown in Figure below.

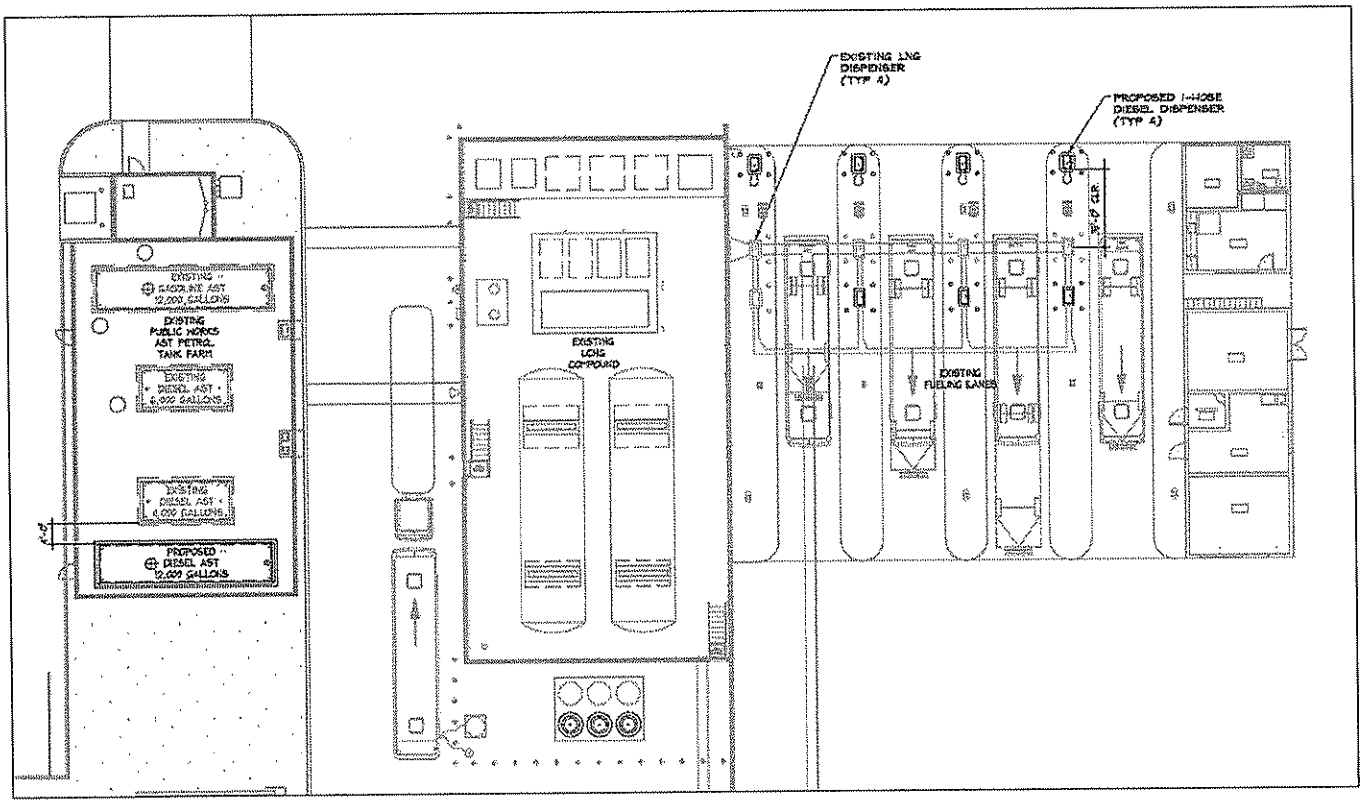


Figure 8A

Design Consultants Required:	Engineering (mechanical & electrical with petrol experience)
Estimated Design Fee:	$50,000
Estimated Construction Cost:	$250,000

Study Item 9: Develop a Cash Handling Building and remove from Fuel islands

Item Location: Maintenance Site

Item Brief Description:

Currently, cash and monies collected on buses on route are removed by a hostler at the fueling island, during fueling, and deposited into a cash vault located at the south end of each island. A private company vehicle independently enters the site, collects each of the four vaults, replaces them with empty units, and removes the monies to an off-site location for counting and processing. The City would like to modify this process so that cash collection occurs at another location on-site.

Approach:

Locating a separate Cash Handling Building was discussed as an option during the initial site master planning workshop for this project in 2004. The decision to place cash handling on the fueling islands was made to avoid stacking buses outside the perimeter barrier of the yard, and to allow the bus driver's to park buses quickly and return to dispatch. It also allowed hostlers to perform multiple functions simultaneously while fueling, which would save overall fueling/cleaning/cash handling time each day.

The initial site options for this building require square footage and circulation space that no longer exists in the finished facility. Costs to reconstruct the site so that any of the initial options could be realized are significant, so the design team has instead identified an alternate location for this facility. Parameters for identifying the alternate location are 1) it must be easily accessible to either a driver or a hostler to provide flexibility for the city and the facility operator, 2) it must be easily accessible by the outside cash counting vendor, 3) it must be shade covered, and 4) it should have as minor an impact on the current site and circulation as possible.

Just inside the main gate to the maintenance yard, bus parking spaces begin, 2 stacked and traveling side by side from east towards the west ending at the fueling islands. The first 18 spaces are currently canopy covered and, although usable, are some of the lesser accessible and functional spaces in the yard. The design team believes that because of the existing canopy coverage, the lesser desirability of the bus spaces, the proximity to the entrance, and the supervision of the gate guard, this is the optimal location a new Cash Handling Building.

The building includes space for two exterior accessible vaults, a work area, and a separate office. Entrance to the office should be separate from entrance to the cash area, which should also have overhead door accessibility. A depressed are to the rear of the vaults, accessed by a short lift, allows for easier cash transfer. Buses approach from the north to keep the vaults on the door side of the bus. A total of five current bus parking spaces will be required to provide site area for the building and a drive aisle along the front building face. These five bus parking spaces will be relocated to the southwest corner of the site so that there is no loss of parking count on site.

Location for the Cash Handling Building is seen below in Exhibit 9A and a preliminary plan is shown in Exhibit 9B and 9C.

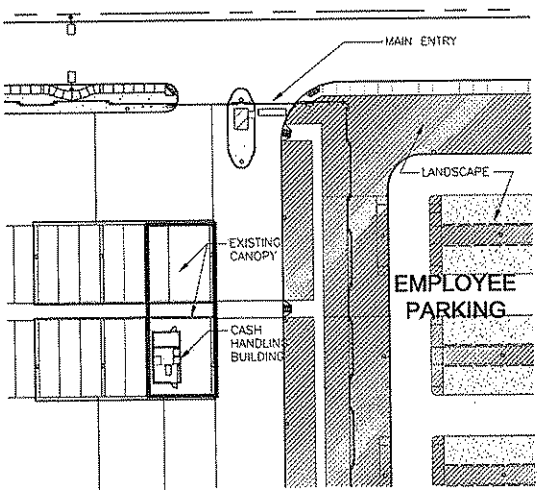


Exhibit 9A

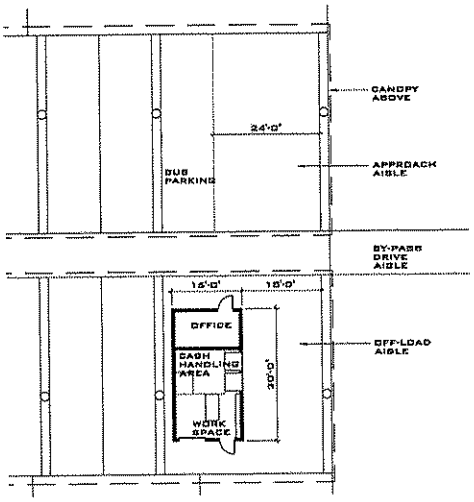


Exhibit 9B

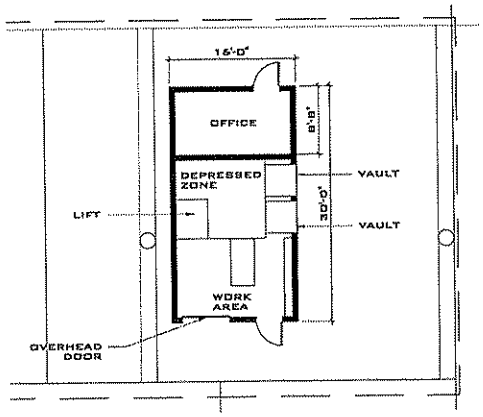


Exhibit 9C

Design Consultants Required:	Architecture MPE Engineering Structural Engineering Civil Engineering Equipment
Estimated Design Fee:	$50,000
Estimated Construction Cost:	$350,000

Study Item 10: Add shade canopy to CNG De-fueling and Work area

Item Location: Maintenance Site

Item Brief Description:

Existing Electric Room F105 is experiencing excessive heat gain in the summer months due to its west facing, 12" thick tilt-up concrete wall. This wall is not insulated and is effectively acting as a heat sink during the day and dissipating the built up heat into the electric room during the night so that the room never has an opportunity to cool down, and the mechanical system works too hard. Secondly, an operational change has occurred to the west of this wall involving the CNG contractor employees which requires them to spend time in this area for a variety of reasons. These workers are not protected from summer temperatures at the moment.

Approach:

A vertical wall placed approximately 30' west of the existing concrete wall allows for two buses to be parked facing south and worked on in quick-fix scenarios. From this wall, a steel framework supporting perforated metal panel would extend back and attach to the existing concrete wall to provide additional shade to the space. The buses would sit under shade to avoid overheating the interiors, and workers would be able to operate in a more user friendly environment, although not in a conditioned space.

Secondly, the horizontal shade device, whether it be metal panel and steel, fabric, or some other material, would provide all day shading to the concrete wall, greatly reducing the heat gain translated into Electric Room F105. The existing mechanical unit on the roof is sufficient to cool the room, provided this heat gain can be dissipated.

Location of and suggested size of wall and canopy is shown below in Exhibits 10A and 10B.

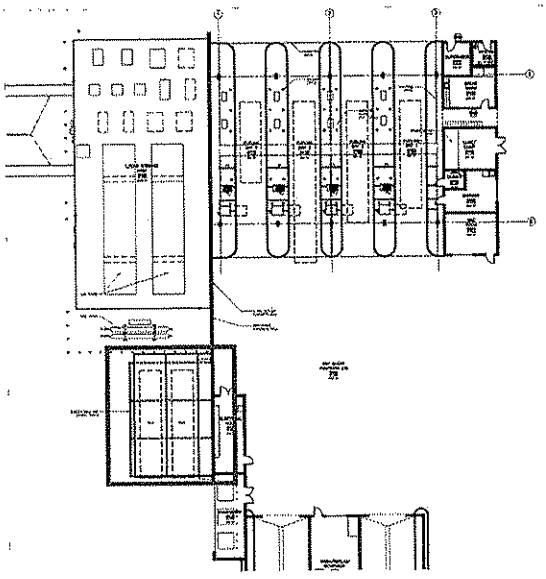


Exhibit 10A

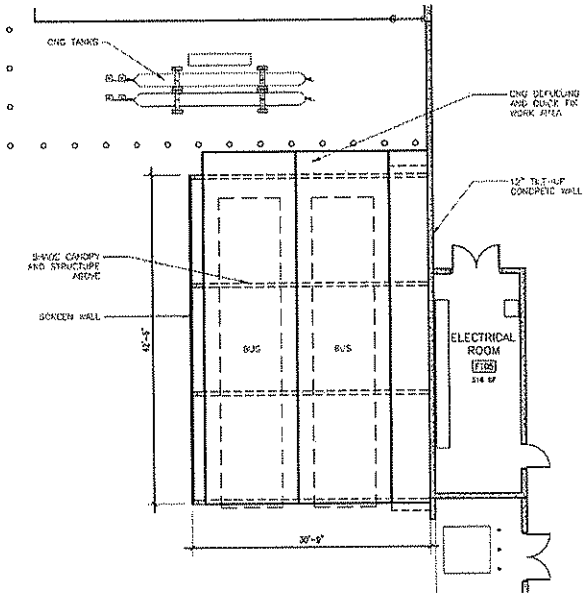


Exhibit 10B

Design Consultants Required:	Architecture Structural Engineering
Estimated Design Fee:	$10,000
Estimated Construction Cost:	$75,000

Study Item 11: Add shade structures to Administration Building employee courtyard

Item Location: Administration Building

Item Brief Description:

The employee courtyard south of the Administration Building was originally designed to include shading devices, however these elements were value engineered out of the project. The city and building operator use the courtyard as originally intended, so there remains the need to provide shade to this area.

Approach:

Since this area has a southern exposure, the east end is already enclosed by a solid concrete wall, and the west end is shielded by an existing fabric canopy, the most effective shade technique is the addition of horizontal elements. The space is between 17' and 19' wide, partially occupied by landscaping. Therefore, the design team's opinion is that a pre-fabricated fabric canopy is the best solution. Fabric would match the existing canopy elements on the building, sizes that would fit in the space comfortably are available, and the canopies are pre-engineered so the city could save those costs. A variety of companies make these types of canopies, and below in Exhibits 11A and 11B are two examples from Birdair, Inc.

Exhibit 11A

Exhibit 11B

Design Consultants Required:	Architecture Landscape Architecture Civil Engineering
Estimated Design Fee:	$10,000
Estimated Construction Cost:	$100,000

Study Item 12: Add heat locations to Maintenance Building repair bays

Item Location: Maintenance Building

Item Brief Description:

Maintenance bays are currently cooled by evaporative cooling units for each bay. These units each have a gas heat pack adjacent to them that provides morning re-heat during the winter. The city has found that these units, located near the overhead doors, are too far away from the most common work areas near the center aisle. Also, due to overhead doors opening and staying open, some of the heat that is generated from these units is lost through the door. Additional heating units or locations need to be added to this building.

Approach:

Gas is currently supplied to the maintenance building, and extending piping runs to other parts of the facility would be feasible. After interviewing city and contract employees, it became clear that not every bay would need additional heat or heating units. Bays are used irregularly so that adding units to each would not be cost effective. The approach that makes the most sense economically and functionally is characterized as a 'campfire' approach.

The five PM Inspection bays on the west end of the Maintenance Building do not need additional heat as the primary work effort there is in the Lower Level Work Areas and below the buses. The 14 bays on the east end of the building are the only locations that apply for this item. There are seven double-width stacked bays set up so that buses either pull through an empty bay to the one in front of it, or back in. Either way, the back of the bus should be along the center aisle, and most of the work effort will also occur here. If gas pack heating units are hung from existing steel columns at three locations along this spine, mechanics could walk a few feet to the nearest one, warm their hands and move back behind the bus to continue work. Given the small number of days in Arizona in which the temperature would reach a low requiring this additional heat, this approach would not adversely affect repair times to a great degree.

This item requires the purchase of two to three small gas heating units, extension of existing gas piping within the facility, and structural calculations and connections to existing columns. The design team recommends adding three units, but the total number of units to be added is at the discretion of the city.

Design Consultants Required:	Architecture MPE Engineering Structural Engineering
Estimated Design Fee:	$5,000
Estimated Construction Cost:	$30,000

Study Item 13: Shading at Administration Building Lobby

Item Location: Administration Building

Item Brief Description:

Heat gain and glare are being experienced in the Administration Building public Lobby/Reception A159. There is a significant amount of glazing on the north, east and south walls of this space, and a number of trees originally planned to shade the morning sun from the east were not planted due to a large underground conduit bank running from north to south across the plaza. The need is to reduce the glare and eliminate the heat gain while maintaining the natural light into this space.

Approach:

The heat gain and direct sunlight intrusion into the space can be mitigated with the addition of window screening along the upper windows of the east side. The north and south windows are not currently allowing direct sunlight to penetrate to a degree that is more than negligible. The recommendation is to use an automated or manual applied window shade from Mechoshade, or an approved equivalent manufacturer.

Location of shade is shown below in Exhibits A and B below.

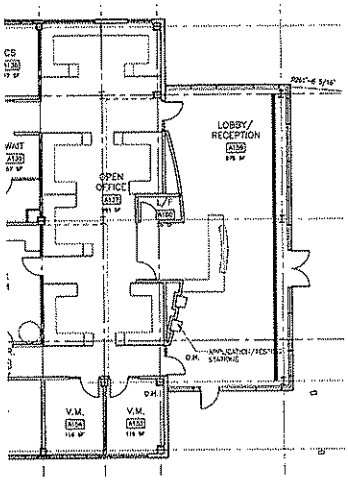


Exhibit 13A

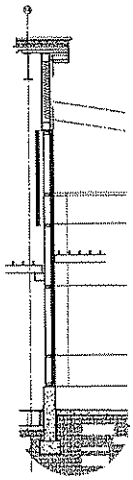


Exhibit 13B

Design Consultants Required:	Architecture MPE Engineering
Estimated Design Fee:	$5,000
Estimated Construction Cost:	$30,000

Study Item 14: Add Blowers to Bus Wash Lanes

Item Location: Wash Building

Item Brief Description:

Blowers are high-speed fans that strip the water from the buses as they exit the bus wash. The bus wash equipment does not have this accessory, but the manufacturer can provide and install the equipment to remove the water to minimize the amount of water that is dragged out of the wash bay as the bus exits. This system is a high energy user as there are eight 10 horsepower fans that deliver air at 2,400 CFM each. This system is typically used in environments that have freezing temperatures to help minimize the water on the ground so that the water does not turn to ice. The system also helps reduce some spotting from hard water deposits.

Approach:

The frame for the blowers will need to be located outside the exit door of the each of the bus wash lanes. There is not enough room to incorporate them inside the building. The manufacturer indicated that it is acceptable to install this system outside. The installation will require some additional controls and activation system that will need to be integrated into the bus wash control system.

Location of blowers to be installed is shown below in Exhibit 15A. Exhibit 15B is a drawing of the blowers.

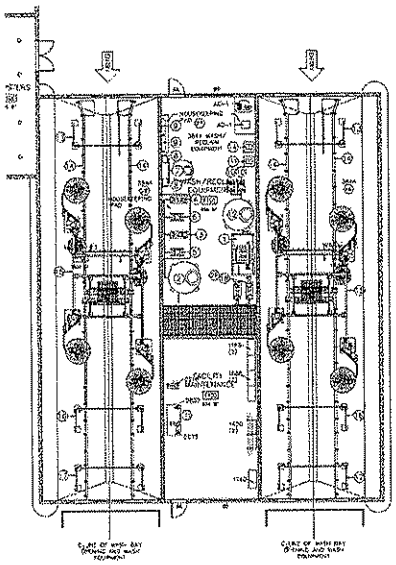


Exhibit 15A

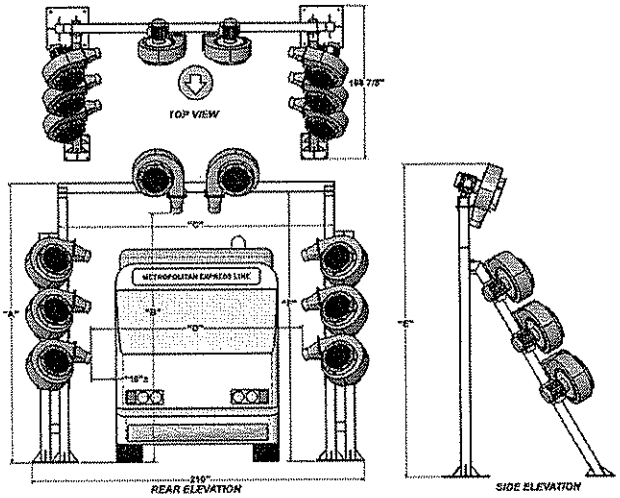


Exhibit 15B

Design Consultants Required:	Architecture MEP Engineering Equipment
Estimated Design Fee:	$20,000
Estimated Construction Cost:	$100,000

Study Item 15: Security Items

Item Location: Various

Item Brief Description:

Additional security related items have also been requested by either city officials located at the facility, or the operator. These items are itemized below and a lump sum estimated cost is provided for all of them together.

Items:

A. Upgrade to existing CCTV installation at the following locations by priority.
   1. Southwest corner of current facility
      a. Pan / Tilt / Zoom (PTZ) camera
      b. Install 16' tall utility pole
   2. South perimeter of Public Works Fuel Station
      a. PTZ
      b. Install 16' tall utility pole
   3. Southwest corner of Maintenance Building
      a. Fixed camera mounted on existing wall (view west)
   4. South wall of Maintenance Building
      a. Fixed camera mounted on existing wall (view south)
   5. Southeast corner of Maintenance Building
      a. Fixed camera mounted on existing wall (view east / employee pedestrian gate)
   6. West elevation of Administration Building
      a. Two (2) fixed cameras mounted to existing wall (one view south other view north / employee entry & exit areas)
   7. New Security building
      a. PTZ camera
      b. Install 16' tall utility pole
   8. New Security building
      a. Two (2) fixed camera (one viewing east other viewing west)
   9. Inside Administration building's lobby area
      a. Fixed camera viewing public entry and reception area
   10. Computer and monitor for CCTV

Infrastructure costs below are for, but not limited to, mounting, repair to existing building exterior materials, pole foundations and systems connections.

Design Consultants Required:	Architecture Structural Engineering Euipment
Estimated Design Fee:	$10,000
Estimated Construction Cost:	$50,000 equipment $25,000 infrastructure

B. Green-screen Landscaping and temporary perimeter security fencing

Currently there is a direct line of sight into critical sections of this facility from the roadway and undeveloped land west and of this location. Future development of this area is very likely therefore incurring significant cost to protect this area of the facility is not justified. Therefore, the recommendation is for chain link fence and an associated landscape plan is recommended to provide an intrusion and a visual barrier. Landscaping is therefore recommended for the area between the new chain link fence and the existing perimeter fence. Total effort includes:

1. 6' tall chain link fencing approximately 1000 linear feet from southwest corner of site 10' west / then north to the north curb line extension of vehicle access road / then east along roadway to security officer booth. Estimate is for 1000'.
2. 20 desert trees, 40 desert cacti, additional low shrub, drought-resistent planting.

Costs below are assumed to include installation.

Design Consultants Required:	Architecture Structural Engineering Landscape Architecture
Estimated Design Fee:	$10,000
Estimated Construction Cost:	$25,000 fencing $25,000 landscape

C. Alternative design for bus and delivery vehicle access control gate with security officer facility (guard shack)
   1. Prefab Security Officer Booth
      a. Steel 5' X 10' prefab w/ restroom & fixtures
      b. 2 sliding doors
      c. Work desk
      d. Level 3 bullet resistant walls and glazing
      e. Building permits
      f. Electrical
      g. Plumbing
      h. 500 watt high mounted light
      i. Interior lighting
      j. 12" roof overhang
   2. Electric upswing operation parking gates
      a. Industrial Gate Barrier and Operator
      b. Entry and exit gates
      c. 8' to 32' long boom
      d. Barrier arm safety sensor
   3. Roadway widening to accommodate new security officer booth
      a. A raised median are for the booth is required
      b. A left turn pullout to allow buses and delivery turning space is recommended.

Costs below are assumed to include installation.

Design Consultants Required:	Architecture

Landscape Architecture
Structural Engineering
Civil Engineering
MPE Engineering

Estimated Design Fee:	$40,000	
Estimated Construction Cost:	$175,000	guard shack incl. connections
	$ 50,000	electric gates
	$100,000	roadway widening
Total	$325,000	

Total for all items A, B and C within Study Item 15

Estimated Design Fee:	$ 60,000
Estimated Construction Cost:	$450,000

Study Item 16: Miscellaneous Items

Item Location: Various

Item Brief Description:

A number of small items have also been requested by either city officials located at the facility, or the operator. These items are itemized below and a lump sum estimated cost is provided for all of them together.

Miscellaneous items in this category include the following:

1. Add perforated metal panel above existing steel trellis at Administration Building front entrance.
2. Add 42" high barrier fencing along west end of Administration Building outside Driver's Room to direct drivers along sidewalks and out to the buses.
3. Add convenience person door to PM Inspection Bay # 5.
4. Add work orders to Facilities Maintenance Plan. Additional orders include
    a. Deep clean areas
    b. New lifts
    c. New canopies
    d. New site areas
    e. Augmentation of existing work orders

Design Consultants Required:	Architecture Structural Engineering Euipment
Estimated Design Fee:	$12,000
Estimated Construction Cost:	$100,000

Summary of Design and Construction Costs

Below is a summary of both the construction and the design costs associated with all items within this analysis. By request, the format of the report was structured as a type of menu from which any number of items could be combined to form one comprehensive construction project, or each item could be undertaken individually. We strongly believe it would be advantageous for the City of Tempe to utilize the comprehensive project approach in order to realize costs savings through economy of effort. These savings would apply to both construction and design costs.

We also believe that construction costs are tied to schedule, and that the current economic climate is favorable to the City. Since a construction schedule is not yet determined, the costs below also contain an escalation factor, so that the city would not have to begin construction immediately, if not able to. If construciton does begin within the next 6 months, its very possible construction costs would be lower than shown below demand within the industry.

This summary reflects individual menu items so that there is a lower liklihood for overruns depending on which items are combined together.

Study Item	Description	Construction Cost	Design Cost
1	Add Shade Canopies at existing Bus Parking	$1,900,000	$100,000
2	Pave SW corner of site, Add canopies for 60' buses and Dial-A-Ride Facility	$1,900,000	$210,000
3	Pave site area south of PW Fueling and Add canopies for additional buses	$2,100,000	$150,000
4	Add Speed Gate at Main Entry	$100,000	$10,000
5	Add 2 45' 2-post lifts to repair bays	$260,000	$20,000
6	Add second Chassis Wash lift	$130,000	$20,000
7	Expand CNG-Bus Fueling System	$800,000	$60,000
8	Add Diesel-Bus Fueling System	$250,000	$50,000
9	Develop a Cash Handling Building and remove from Fuel islands	$350,000	$50,000
10	Add shade canopy to CNG De-fueling and Work area	$75,000	$10,000
11	Add Shade structures to Administration Building employee courtyard	$100,000	$10,000
12	Add heat locations to Maintenance Building repair bays	$30,000	$5,000
13	Shading at Administration Building Lobby	$30,000	$5,000
14	Bus Wash Air Curtain Dryer	$100,000	$20,000
15	Security Items and Cameras	$450,000	$60,000
16	Miscellaneous Items	$100,000	$12,000
Total		**$8,675,000**	**$792,000**

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